

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-4. (Cancelled)

5. (New) A probe tip alignment method for a probe tip array comprising one or more probe tips controlled by a probe drive system, the method comprising:

(a) inserting a first probe tip of the probe tip array into a first locator well at a known position on a locator bed; and

(b) determining the offset of the first probe tip position in the first locator well relative to a nominal position.

6. (New) The method of claim 5, further comprising:

(a) inserting each remaining probe tip of the probe tip array into the locator well; and

(b) determining the offset of the probe tip position in the well relative to a nominal position for each remaining probe tip of the probe tip array.

7. (New) The method of claim 6 wherein determining the offset comprises:

(a) driving the probe tip back and forth along a first axis until it contacts opposing points on a side wall of the locator well and determining the midpoint between the opposing points to provide a first offset coordinate; and

(b) driving the probe tip back and forth along a second axis orthogonal to the first axis until it contacts opposing points on the side wall of the locator well and determining the midpoint between the opposing points to provide a second offset coordinate.

8. (New) The method of claim 7 wherein the probe tip is driven along the axes in incremental steps and the presence or absence of contact is tested at each step.

9. (New) The method of claim 7 wherein contact between the probe tip and the side wall is detected by the formation of an electrical current between the probe tip and the side wall.

10. (New) The method of claim 6, further comprising determining probe tip scatter about the nominal position from the offsets.

11. (New) The method of claim 10, further comprising calculating a global correction factor from the probe tip scatter and using the global correction factor to modify the position of the probe tip array over the locator bed.

12. (New) The method of claim 10, further comprising identifying any probe tips having an offset greater than a selected maximum offset boundary and realigning the identified probe tips so that they are within the maximum offset boundary.

13. (New) The method of claim 12 wherein realigning probe tips comprises:

- (a) using the probe drive system to place any identified probe tip into contact with a rigid part of the locator bed; and
- (b) driving the identified probe tip against the rigid part to bend the identified probe into an aligned position.

14. (New) The method of claim 13 wherein the rigid part of the locator bed is the locator well.

15. (New) The method of claim 6, further comprising determining the amount of skew between the probe tip array and a probe carrier holding the probe tip array.

16. (New) The method of claim 15 wherein determining the amount of skew comprises fitting a line to the probe tip positions and determining the angle between the fit line and a line passing through the nominal positions for the probe tips.

17. (New) The method of claim 6, further comprising checking the alignment of the locator bed by:

(a) inserting a probe tip of the probe tip array into a second locator well at a known position on the locator bed;

(b) determining the offset of the probe tip position in the second locator well relative to a nominal position;

(c) inserting the probe tip into a third locator well at a known position on the locator bed;

(d) determining the offset of the probe tip position in the third locator well relative to a nominal position; and

(e) comparing the offsets of the probe tip positions in the second and third locator wells to the offset of the probe tip position in the first locator wells;

wherein the second and third locator wells are disposed on opposite sides of the first locator well to form a line of wells and the positions of the second and third locator wells are known relative to the first locator well.

18. (New) The method of claim 5, further comprising driving the probe tip with the probe tip drive system against a side wall of the locator well to reduce the offset.